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## Science Office Survives White House Reorganization

The basic news about the White House Office of Science and Technology Policy (OSTP) is that it survived the presidential staff reorganization that was announced July 15. OSTP will be smaller, possibly more influential, but also quite different from its long chain of predecessors in the provision of science advice to the President. It is difficult, however, to say whether the net outcome is a plus for the beneficial linking of science and government.

Surviving in the face of Mr. Carter's passion for cutting the payroll is no minor feat, which means that the President and his reorganization squad see merit in having science advice on the premises. The advice, however, will come from an OSTP that is substantially pared down in size — from its present 32 staffers to 22 — and that is shorn of a number of functions that have

ing, and Technology Advisory Panel — which was supposed to link national, state, and local efforts in R&D — is to be assigned to a presidential unit responsible for intergovernmental affairs in general, with the science adviser chairing R&D-related activities.

The OSTP changes, as well as similar ones throughout the presidential staff organizations, were designed, according to a White House fact sheet, to "Rationalize EOP (Executive Office of the President) structure by limiting EOP, wherever possible, to functions which bear a close relationship to the work of the President." And that's where considerable conflict exists between the concept of OSTP approved last year by Congress, and the concept of OSTP that is embodied in the President's reorganization plan. Mr. Carter has opted for a shop that is organized mainly for the provision of quick service for the President, whereas the Congressional drafters, in collaboration with the Ford White House, created OSTP to fulfill that function but also to serve as an organization concerned with broad-gauged problems of science and society. Integral to this latter function were the very responsibilities that have now been removed from OSTP.

The five-year outlook report was, for example, not intended to be a mere exercise in report writing, though it might have turned out that way, given the minimal

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### *Budget Office Explains*

### *The Reorganization---Page 3*

been relocated on the assumption that they are peripheral to the task of aiding the President and his principal aides.

Thus, the reorganizers have eliminated the President's Committee on Science and Technology, an OSTP appendage that bore a close resemblance to the influential and prestigious President's Science Advisory Committee that existed in the bygone days of the White House science office. The Committee, which was created in the same statute that brought OSTP into existence last year, held a two-year charter to make a comprehensive study of federal science policies, after which the President could let it lapse or keep it in being. Under the reorganization plan, its functions will be absorbed into an ongoing White House study of government organization.

At the same time, OSTP will shed the tasks of annually preparing a five-year "outlook" concerning problems and opportunities in science and technology, as well as an annual report, more or less in the same area, but of a short-term nature. Both functions have been assigned to the National Science Foundation.

The reorganization plan also removes several coordinating functions from OSTP's direct jurisdiction. The Federal Council for Science, Engineering, and Technology — a council of senior R&D officials from throughout the government — is to be reconstituted as a "sub-cabinet working group," chaired by the OSTP director. And the Intergovernmental Science, Engineer-

## In Brief

**White House energy chief James Schlesinger is planning to reorganize the Energy Research and Development Administration beyond recognition as soon as Congress votes creation of a Department of Energy. Schlesinger, who is notorious for impatience with bureaucratic bumbling, sees ERDA as an unorchestrated collection of fiefdoms built around particular technologies, with little regard to national priorities or longrange planning.**

*How does a presidential science adviser decide what to advise on? Frank Press told a group of science writers July 18 that "exquisite taste" is required. He said he took no part in the B-1 decision because, after being briefed on how the President was briefed, he felt Mr. Carter had received all relevant information. Press' 55-minute briefing on the science office reorganization was a deadpan performance throughout, with occasional references to matters being "staffed out," a function that is performed by "players" who are members of "the team."*

## OSTP Tightly Linked to Day-to-Day Needs

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performance that often goes into Congressionally mandated reports. Rather, it was intended to encourage the White House to concentrate some attention beyond brush fires of the moment. Since science and technology infuse virtually every activity of government, the five-year look-ahead, a rarity in government, might have turned out to be a useful exercise in forecasting and trouble avoidance. The task will now be carried out by the National Science Foundation, and perhaps will be well performed, since NSF's staff resources and bank-roll for consultants far exceeds that of OSTP. But alarms sounded by NSF do not have the reverberation quality of those sounded by a bona fide White House unit. The fault lies with the press, not the validity of the alarms.

Similarly, the demise of the President's Committee on Science and Technology removes a potentially useful source of outside opinion. Science Adviser Frank Press told a group of science writers at a July 18 briefing on the reorganization that he would summon outside advisers on an ad hoc basis as needed. But in a capital that is regularly awash with advice, there are advisers and there are advisers. Those who are summoned in for a particular task are prisoners of the questions assigned to them, no matter how open-minded their conveners may be. The advantage of a standing committee of prestigious consultants, on the model of the defunct President's Science Advisory Committee, is that it can exert some influence over the selection of matters to be studied. It cannot function for long without careful attention to serving the needs of its patron. But when it is composed of people with established reputations who hold appointments for several years, it is more of a force for independent thinking than an ad hoc group summoned for a specific task.

The relocation of the functions once assigned to the Coordinating Council and the Intergovernmental Advisory Panel also diminishes the role and authority of OSTP. Director Press will still have a voice in these functions as chairman of the reconstituted bodies that will handle them. But the matters that they will be concerned with have now been moved outside the orbit of

his office, and, since he is a busy man, the question of how much attention he can give them is a serious one.

At the July 18 briefing, Press said, "I feel in a very upbeat mood" about the reorganization. There is no doubt that the new arrangements move him closer to day-to-day decisionmaking in the White House. And there is also no doubt that custom and common sense dictate that presidential staff organization is the President's business. But it should be noted that day-to-day efficiency at the White House is being promoted at the cost of trying to foresee next year's problems. Mr. Carter has reorganized the White House for working, but there should be some concern about how well he has reorganized it for thinking.—DSG

### *Inflation Hits Basic Science*

Expenditures on basic research in colleges and universities failed to keep pace with inflation in fiscal year 1976, continuing a long decline in real support, according to figures released last month by the National Science Foundation. The figures show that basic research support rose by only 5 per cent, about 2 per cent less than the rate of inflation.

NSF calculates that support for basic research in colleges and universities dropped by about 5 per cent in constant dollars between 1968 and 1976, and that basic research is taking a declining share of total academic research and development expenditures. In 1970, basic research accounted for some 77 per cent of the total; last year, it dropped to 68 per cent.

In contrast, spending on applied research has been growing steadily, averaging about 6 per cent a year in constant dollars between 1968 and 1976.

The figures are consistent with the findings of a study, *The State of Academic Science*, published earlier this year (SGR Vol. VII, No. 10). The study warned that declining support for academic science is eroding the quality of research at many second-rank institutions. It should be noted, however, that support for basic research is expected to show some real growth in fiscal years 1977 and 1978.

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## OMB Details New Role for the Science Office

*The following questions and answers are excerpts from an Office of Management and Budget memorandum concerning the effects that the presidential staff reorganization will have on the Office of Science and Technology Policy:*

**Question:** Is this a downgrading of OSTP?

**Answer:** No. Our proposal has recognized the significant role that can be played by the Science Adviser. Our analysis has underscored the need to focus the Science office closely on Presidential needs, to narrow the scope of OSTP's broadly defined mandate and to perform some of its functions in places with more resources or close to the mechanism the President uses.

**Question:** Who will the Science Adviser advise?

**Answer:** The President and his senior advisers in the White House. In addition, the Science Adviser and his staff will work closely with and provide advice on scientific and technical considerations to other components of the White House and Executive Office, including the Domestic Policy Staff, the National Security Council and OMB.

**Question:** What will be the role of the Science Adviser in reviewing military R&D programs including major weapons systems programs?

**Answer:** The Science Adviser and his staff will work closely with existing Executive Office organizations involved in the review of military programs, particularly the National Security Council.

**Question:** What will be the relationship between the new Office of Science and Technology Policy and the NSF?

**Answer:** The NSF will continue to support a broad range of science policy studies and will work very closely with the new office to support its functions. In addition, the NSF will prepare the annual report and the Five-Year Outlook. We look forward to NSF's counsel as we proceed on our reorganization studies.

**Question:** What kind of assignments will be given to the Office of Science and Technology Policy?

**Answer:** The assignments given will depend heavily on the issues that are facing the President.

Scientific and technical considerations are important to many of the issues which come to the President and to senior advisers in the White House and Executive Office. These include issues involving energy, economy, environment and others. When scientific and technical considerations are important in policy, program and budget matters, we will expect the Office to be involved.

**Question:** Will the Director of the Science and Technology Policy Office also be a part of the White House Staff?

**Answer:** Yes, the Director will continue to serve as Science and Technology Adviser to the President.

**Question:** Will the Science Adviser have other responsibilities besides providing advice?

**Answer:** He will exercise a coordinating role among Federal programs and agencies, and will, for example, chair the *ad hoc* Federal Council for Science and Technology. The *ad hoc* intergovernmental panels and provides policy guidance to the President's Reorganization Project.

He will also act as the President's spokesman on science and technology. As in the case of other senior advisers, he will not direct the operation of programs because program management responsibilities are vested in the mission agencies.

**Question:** What responsibility will the Office have with respect to agency R&D budgets?

**Answer:** The role of the Office is strengthened under our proposal. It will be expected to participate in the review of agency R&D programs and budgets and will work with the OMB in support of the annual budget process.

### Chemists to Meet Egyptians

A group of American and Egyptian chemists plan to meet November 28 in Cairo to discuss development of longrange cooperative research programs, according to the American Chemical Society. The meeting, supported by the US Agency for International Development, will examine potential projects involving pesticides, minerals and metallurgy, chemical modification of cotton, and utilization of fibrous raw material.

## ERDA to Investigate Carbon Dioxide Hazards

The Energy Research and Development Administration (ERDA) last week established a special office to investigate potential hazards associated with the buildup of carbon dioxide in the atmosphere from burning fossil fuels. The announcement followed by one day the release of a much-publicized report by a committee of the National Academy of Sciences, which warned that increasing use of fossil fuels may lead to long-term changes in the earth's climate.

In April, as part of his energy plan, President Carter requested \$1 million for a study of the potential climatic impact of burning fossil fuels, and that money will provide the initial budget for the new office. The research plan itself is being developed by a committee chaired by Alvin Weinberg, director of the Institute for Energy Analysis. The committee, which was established by ERDA in 1976, is expected to report in the next few weeks.

Though suggestions that buildup of carbon dioxide in the atmosphere could lead to climate changes have been around for some time, the publication last week of the Academy's report has focused considerable attention on the matter. The theory, essentially, is that atmospheric carbon dioxide will absorb heat radiated from the earth's surface, leading to a warming of the lower atmosphere, which in turn will trigger changes in climate.

The Academy committee, which was chaired by Roger Revelle of Harvard and the University of California at San Diego, noted that although data support-

ing the theory are incomplete the theory should nevertheless be taken very seriously.

The committee estimated that the carbon dioxide concentration in the atmosphere has increased by between 11 and 13 per cent since the beginning of the Industrial Revolution. If use of fossil fuels continues to increase at recent rates, carbon dioxide concentration could reach double the pre-industrial level within a century and double again during the next century. Such an increase could lead to a 6°C rise in average global temperature, the committee reckons.

The ultimate effect is difficult to predict precisely, but such a rise in temperature would be likely to shift agricultural zones poleward, cause major changes in ocean fisheries, upset weather patterns and ocean currents, cause the ocean levels to rise and, possibly, lead to destruction of part of the polar ice caps.

Such predictions are being seized by the nuclear industry and used to support its claim that nuclear power offers a better choice for long-term energy supplies. It is important to note, however, that the potential climatic impact from burning fossil fuels is expected to be serious only if use of coal continues to expand at a fast pace for many decades. At a press conference last week, Revelle offered the following assessment: "for the next 20 or 30 years it is all right to use coal, provided we don't get committed to it. But we'll have to be prepared to kick the habit" if the potential impact looks serious.—CN

## *NSF Appropriation Request Gets Good Treatment in Congress*

The National Science Foundation has fared reasonably well on Capitol Hill this year, emerging with an appropriation of \$861 million — nearly \$24 million less than the President's request, but \$85 million more than it received last year.

NSF's program of Research Applied to National Needs was given a ceiling of \$63 million, which is \$15 million below the amount sought by the Administration. The significance of the ceiling, however, is difficult to assess since NSF is moving toward a major reorganization of the RANN operation.

As far as innovations are concerned, the most interesting is a new program called Basic Research Stability Grants, for which \$4.5 million was designated from a phased-out program called Research Initiation and Support. The Stability Grants are intended to provide universities with no-strings funds to meet some of the costs that are generated, but uncovered, in the course of carrying out research projects supported by NSF.

Still to be resolved is a conflict between the House and Senate over NSF's Science for Citizens program, a pet project of Senator Edward Kennedy, who pressured NSF into introducing the venture last year. Designed to acquaint the citizenry with science policy issues, the program was authorized at \$1 million last year, and the Senate voted to expand it to \$5 million next year. The House, however, is fearful that Science for Citizens will become a bankroll for public interest "intervenor," and it wants to confine the program to a mere \$100,000 to study its brief record. The matter is to be resolved when the two chambers get together to work out their respective authorization bills.

Another innovation is one introduced by Senator Proxmire, who put across a limitation on the use of NSF funds for consultants, whether in the employ of NSF or its grantees. The provision limits consultant remuneration to a maximum of the daily pay of the government's top civil service scale, about \$182.



## ***New Director Appointed for National Institute of Education***

Six months in office, the Carter Administration continues to maintain a leisurely pace in filling major and minor government posts. Following are some of the latest appointments:

The new head of the National Institute of Education will be Patricia A. Graham, vice president of Radcliffe College and professor at the Harvard Graduate School of Education. She succeeds Harold Hodgkinson at the much-troubled NIE, which is a leading candidate for being reorganized into oblivion when the President's study teams get around to shaking up and slimming down the Department of Health, Education, and Welfare. Senate confirmation is required for the NIE directorship.

S. David Freeman, one of the more widely esteemed mandarins on the energy scene, has been nominated by the President for a nine-year term on the three-member board of the Tennessee Valley Authority. Freeman, who came into public view as director of the Ford Foundation's 1974 Energy Policy Project, is a senior aide to energy czar James Schlesinger, and is considered to be the designer of

the Administration's energy conservation program. The Senate rejected two Ford appointees for the TVA seat, which became vacant in 1975. Freeman, however, should face no difficulty. Carter apparently has serious plans for TVA, having told Congress April 20 that he wants the sprawling enterprise to serve as an energy-conservation model for the nation. The chairmanship becomes vacant next May and Freeman may be headed for that post.

Meanwhile, two MIT-based veterans of Washington science-policy affairs have been appointed senior consultants to the Office of Science and Technology Policy. They are Eugene Skolnikoff, director of MIT's Center for International Studies, and Jack Ruina, formerly a Defense Department research administrator, who is professor of electrical engineering. They will serve as part-timers, but that is expected to involve a fairly heavy workload, since OSTP Director Frank Press is relying on senior consultants to make up for some of the staff cuts that his office has to absorb.

## **NRC Commissioner Floats International Control Plan**

President Carter's attempts to deter the use of plutonium as a reactor fuel worldwide have been getting a chilly reception abroad, while his proposal to shut off the Clinch River breeder reactor has been severely mauled in Congress, all of which has led the nuclear industry and its supporters to argue that it's impossible to put a lid on the use of plutonium, and the United States may as well abandon the attempt.

Last month, however, at an arms control seminar in California, Victor Gilinsky, an outspoken member of the Nuclear Regulatory Commission, floated a proposal to place all reprocessing decisions under complete international control. Though the proposal hasn't been publicly endorsed by the Carter Administration, Gilinsky's speech has been widely distributed by the NRC press office and it is attracting some attention around Washington.

Gilinsky essentially called for a new international organization to decide the conditions, if any, under which reprocessing should be permitted. Countries which purchase nuclear technology would be required to enter into an agreement with the new organization "embodying an undertaking not to reprocess nuclear fuel until this is permitted by the international body, or group of suppliers."

"Under this scheme, no reprocessing would take place at all until the international organization makes a

general finding that the world community can cope with the associated risks of proliferation — perhaps a future finding that as a consequence of the introduction of technological and institutional innovation, reprocessing can now take place without increasing the risks of proliferation beyond that of the once through fuel cycle," Gilinsky stated.

He then suggested that once the new organization is established, the United States should turn over to it all bilateral nuclear agreements which involve reprocessing. Such transfers "should be contingent on a Congressional finding that effective and enforceable international reprocessing controls are available," however.

"The often heard criticism that the United States is trying to impose its will on trading partners can best be answered by our agreement to be bound by the same rules and the same international discipline as others," Gilinsky stated. He added: "If all countries participate in the reprocessing findings, fears that the United States is trying to impose a double standard can be allayed."

The idea of placing all reprocessing decisions in the hands of an international body at least acknowledges the fact that a decision by the United States to turn its back on plutonium won't prevent proliferation if other countries fail to follow suit. The scheme proposed by

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## Congress Trims New Agricultural R&D Program

Two reports published last month recommend that basic research related to agriculture should be given a major infusion of funds. The reports, published by the National Academy of Sciences and the Congressional Office of Technology Assessment, both suggest that the Department of Agriculture should establish a new program of competitive grants and a peer-review system to judge the quality of grant applications.

If those proposals sound familiar, that may be because they have been recommended in three previous Academy reports, dating back to 1971, and they were also endorsed by the Ford Administration. The Congressional Appropriations committees have, however, only just begun to pay attention, and their reaction has not been over-generous.

In the budget for fiscal year 1978 which he submitted to Congress just before he left office, President Ford recommended that \$27.6 million be spent by the Department of Agriculture on basic research funded through a new competitive grants program. The House appropriations subcommittee on agriculture, headed by Rep. Jamie Whitten (D-Miss.), slashed the request to \$10 million, however, and that amount was eventually approved by the full House. The Carter Administration did a bit of lobbying on the Senate side, and the Senate Appropriations Committee came through with the full \$27.6 million, however.

Last week, a House-Senate conference committee arrived at a compromise figure of \$15 million for the new program, but it specified that \$5 million of it must be spent on nutrition research. At least the Department of Agriculture will now be supporting a small amount of basic research judged meritorious by the peer review process, but the amount is far short of the initial recommendations.

The Academy report, the result of a two-year study of world food and nutrition problems co-ordinated by a committee headed by Harrison Brown, recommended that \$60 million be put into a competitive grant program in USDA in the first year, with increases of at least 10

per cent over the next five years.

The OTA study noted that funding for agricultural research has failed to keep pace with inflation during the past few years, with the result that real support has slipped by more than 10 per cent over the past decade. OTA's suggestions are, however, more modest than those put forward by the Academy. It suggested that an increase of \$12.45 million for research on photosynthesis, nitrogen fixation, and plant cell biology would be "cost beneficial," with increases of \$4-6 million in subsequent years.

Copies of the Academy report, *World Food and Nutrition Study*, are available from Printing and Publishing Office, National Academy of Sciences, Washington DC 20418. The OTA study, *Organizing and Financing Basic Research to Increase Food Production*, is available from the Office of Technology Assessment, Washington DC 20510.

### In Quotes

"There is no longer much question that the maximum utilizable funds are being devoted to research on cancer. . . . There is a troublesome side, however, to this increased support: in only five years, it has risen from 17 per cent to 33 per cent of the annual NIH expenditure. Cancer research is by no means at a stage comparable to that supporting the engineering feat of placing a man on the moon. Knowledge is not yet adequate to 'program' a certain decline in cancer mortality or morbidity, and viable leads are limited. Indeed, what we need to know could just as easily end up coming from research in some other, more basic disciplines whose support might well have been diminished because of budgetary constraints. Annual outlays for cancer research may soon reach \$1 billion and must increase at least \$100 million yearly just to keep pace with inflation at its current rate. At present, the nation does not spend even half of that *increment* on population control, to give but one example for comparison. Attempts to accelerate research in this one quarter have perhaps been so vigorous as seriously to upset the momentum of the general research movement. In the long run, the adjustment of support for research to retain the vitality of the whole is more desirable than is the excessive dedication to one disease problem."

Donald S. Fredrickson, director, National Institutes of Health, in an essay, "Health and the Search for Knowledge," contained in a collection, *Doing Better and Feeling Worse: Health in the United States*, edited by John H. Knowles, president, the Rockefeller Foundation (287 pages, Norton & Co., New York, \$9.95 bound, \$3.95 paper).

### PLUTONIUM (Continued from Page 5)

Gilinsky is, however, likely to run into some opposition from nuclear critics.

At present, the stated position of the Carter Administration is that entry into the so-called plutonium economy should be avoided, and abandonment of the United States' own plans to reprocess nuclear fuel demonstrates that the Administration is serious about the matter. To turn reprocessing policy over to an international body would therefore seem like a retreat from the Administration's present position.

## France Planning Nuclear Force Modernization

*Paris.* After a long period of relative inactivity, the military research establishment here is being revamped as a first step toward a new chapter in France's role as the biggest of the mini-nuclear powers. Though the French ambitions have received little or no attention in the foreign press, the Soviets apparently regard them as sufficiently serious for Leonid Brezhnev to have made pointed inquiries to President Valéry Giscard d'Estaing during the Soviet leader's recent visit here.

French strategic doctrine calls for the "force de frappe" — Mirage IV bombers, land- and submarine-based missiles — to be targeted against Soviet cities as a deterrent to an attack on France. This deterrence concept is still the orthodox one. But few military experts here believe that bombers and land-based missiles possess credibility.

Therefore, the chief of staff, General Mery, has been arguing in favor of using tactical nuclear weapons against an invasion of central Europe. This, of course, would involve close military coordination with other Western powers, and a revision of France's policy of cooperation with but independence from NATO's overall defense planning. The change is still being debated in high government circles, and is yet to emerge as a coherent policy. But Brezhnev's expression of concern, plus a number of reorganization moves in military R&D, indicates that major

decisions are apparently far more advanced than public announcements would indicate.

The new strategy calls for a number of major weapons developments. The present Pluton tactical missile, with a range of about 65 miles, would be replaced by a Super Pluton, with a 100-mile range. France will build a cruise missile, though details of this goal are sparse. And an advanced missile-launching submarine, fitted with multiple — MIRVd — warheads, will be constructed.

The question remains, however, as to whether the R&D establishment is up to the task. The government obviously thinks not, and has ordered a far-reaching shakeup to eliminate the drowsiness that has set in with a low level of activity in recent years. Research and testing of missiles and launch systems has now been concentrated in a single agency. The military laboratories are to be more closely coordinated under a central research directorate. And the Defense Ministry has established a new post to serve as a liaison with civilian research.

Under the new arrangements, no civilian scientists will be involved in operational affairs. Their best window on military activities will be through the Defense Ministry's liaison officer, who, at this writing, had not been appointed. Considering the left-wing sympathies of a large segment of French civilian science, the job is not especially coveted.—FS

## Broad Role Sought for Human Research Commission

Following the latest round of revelations about unethical drug tests conducted by the Central Intelligence Agency on unsuspecting people, Senator Edward Kennedy (D-Mass.) has proposed that the National Commission for the Protection of Human Subjects of Biomedical and Behavioral Research be elevated to a presidential commission; also that it should have authority to delve into research supported by all government agencies. At present, its jurisdiction is limited to programs supported by the Department of Health, Education, and Welfare.

The commission, which has produced major studies on topics such as research on prisoners and psychosurgery, is due to go out of business at the end of this year unless Congress extends its charter.

Kennedy last month introduced a bill, co-sponsored by Senators Jacob Javits (R-N.Y.) and Richard Schweiker (R-Pa.), which would replace the commission by a presidentially appointed 11-member panel. Added as advisers to the panel would be individuals appointed by the secretaries of HEW and Defense, the Director of the CIA, the Director of the Office of Science and

Technology Policy, the Administrator of the Veterans Administration, and the Director of the National Science Foundation.

The chief task of the proposed commission would be to monitor all federally funded research involving human subjects and to develop federal regulations for such experiments. It would also be required to conduct a special study of "the ethical, social and legal implications of advances in biomedical and behavioral research technology," a requirement which could give the commission the power to examine the long-term implications of recombinant DNA research.

### NSF Grants Cornell \$5 Million

The National Science Foundation has awarded Cornell University a five-year, \$5-million grant to establish and operate what NSF describes as "The first national facility for research on electronic devices of less than one micron. . ." To be known as the National Research and Resource Facility for Sub-Micron Structures, the new research center is one of the biggest commitments NSF has made in recent years.

## British Energy Head Sacks Chief Scientist

*London.* Civil servants don't get fired in Britain. Governments come and go but government employees go on and on — so the research community was stunned when Energy Secretary Tony Benn recently told his chief scientific adviser, Walter Marshall, that his services were no longer required.

In the British style, Benn tried to obscure what he was doing, going so far as to deplore, but not deny, newspaper stories that he had sacked Marshall. "In view of the important decisions concerning nuclear policy that will need to be taken in the near future and the significant role of the Atomic Energy Authority in this area," Benn stated with fine ambiguity, "the Secretary of State for Energy has asked Dr. Marshall to resume full-time work in the Atomic Energy Authority as soon as possible." This was widely seen as a statement that Marshall had to go because he did not go along with Benn's anti-nuclear policy.

Marshall took the job of Chief Scientist at the Department of Energy in June 1974. At the time his doubts about politicians and their world prompted him to retain his job as head of the government's Harwell research laboratory. (Marshall made his reputation by revitalizing the ailing Atomic Energy Research Establishment and taking it into various non-nuclear industrial R&D areas). In December 1975 Benn persuaded Marshall to take on the job of deputy chairman of the UKAEA while continuing his role as the Energy Department's chief scientist. As before, Marshall's salary was to be paid by the United Kingdom Atomic Energy Authority (UKAEA) — he was never paid for his work at the Department of Energy.

Over the past three years Marshall has transformed Britain's energy R&D program and the government

machinery that administers it. Before the oil crisis, the government left it to the AEA and the nationalized energy industries (coal and gas) to pursue their chosen research lines. The civil servants merely looked at the books each year to see that things weren't too wildly off course. Unconventional energy sources were ignored in their energy R&D budget before Marshall appeared.

With Marshall gone the question is who will pick up the pieces? He had all but completed his portfolio of energy R&D before Benn sacked him. And there aren't many scientists around with Marshall's swashbuckling approach, without which progress in alternative energy R&D would have been much slower.

Benn did not welcome suggestions that he had fired Marshall, but there is no denying that the two clashed over the future of Britain's nuclear program. Marshall, for all his good work in establishing an R&D program on alternative energy sources, is committed to nuclear power.

Benn, who once masterminded Britain's nuclear program and now finds it politic to question the country's nuclear efforts, did not like the way in which Marshall successfully countered his new-found anti-nuclear attitude.

With so many questions facing Britain's nuclear program — there are decisions imminent on thermal reactors, fast reactors, and reprocessing — it is easy to see why Benn wanted to remove such a formidable advocate of the case for nuclear power. It is less easy to see how he will find a way out of his current dilemma. Benn wants to be accepted by everyone without offending anyone. And as nuclear policy makers have found, this is the sure way to oblivion.—MK

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